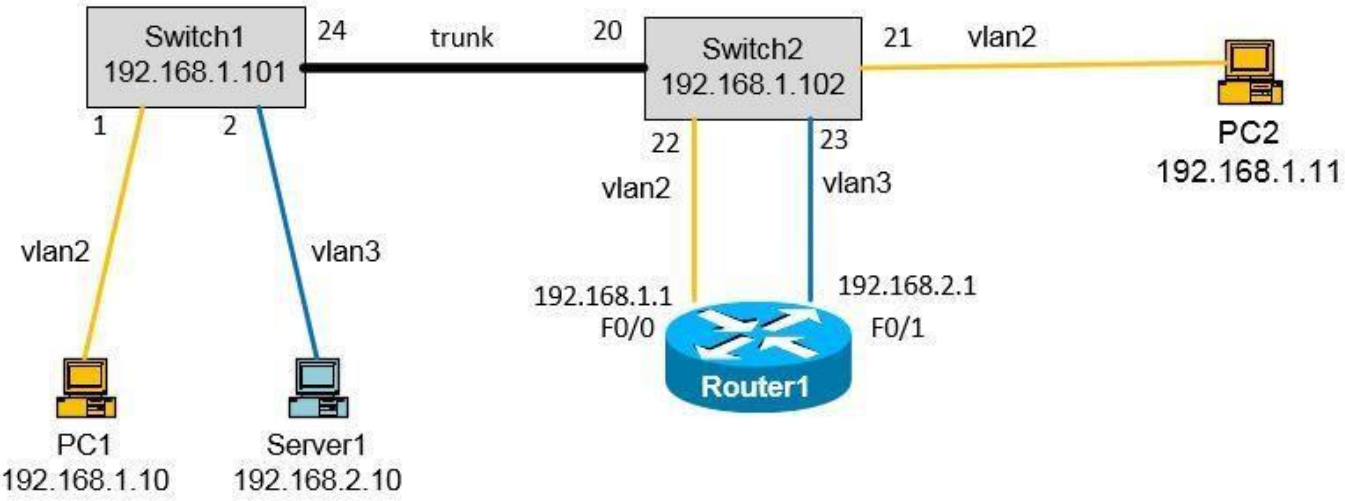
CS4471 Lab Assignment 5
VLAN & Inter-Vlan Routing (version 1.0)

Group Number: 18
Group Members:
SmitKumar Patel CIN : 306587208
Riddhiben Patel CIN : 306612701
Alejandra Monteon CIN : 302203894

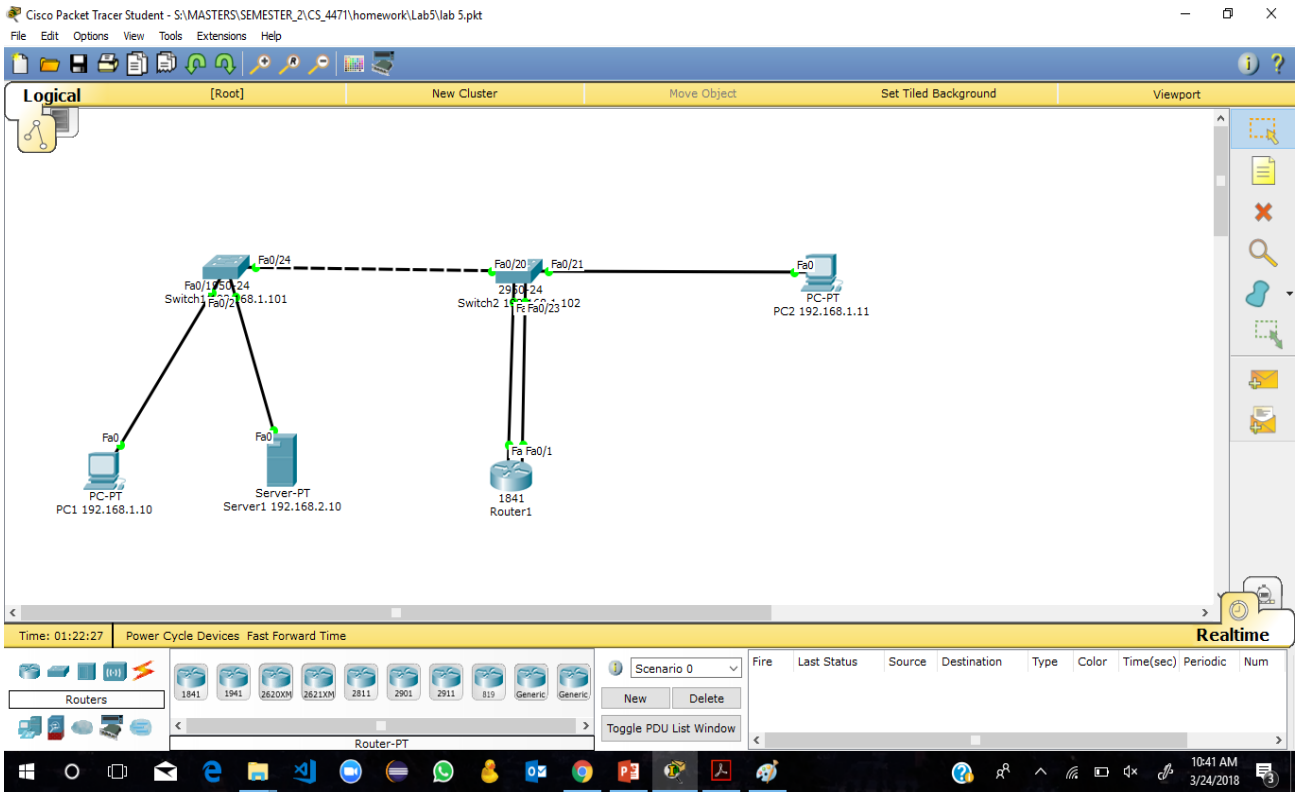
Use Cisco Packet Tracer program to create the network shown below.

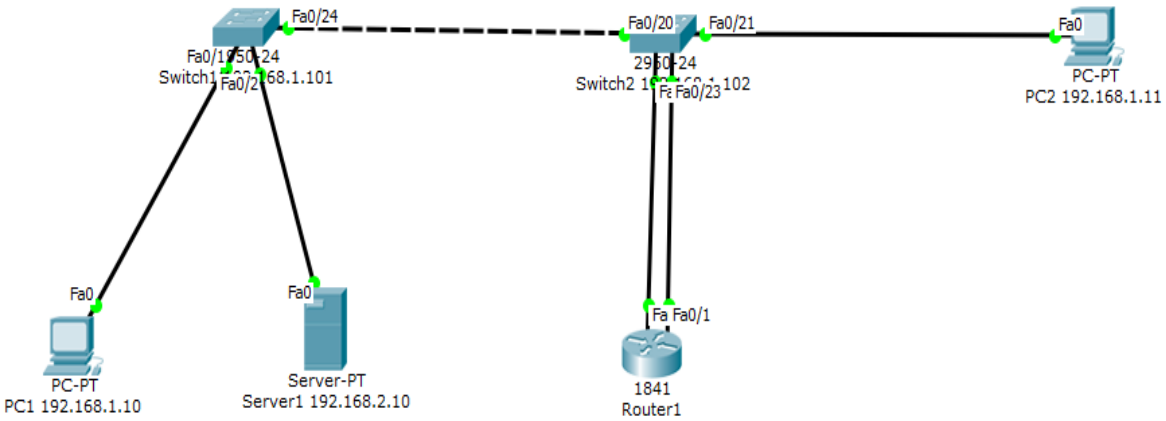
- configure the hostnames, IP address, and subnet mask(255.255.255.0) of all six devices as shown.

- interconnect the six devices with appropriate Ethernet cables and verify that all six links are up



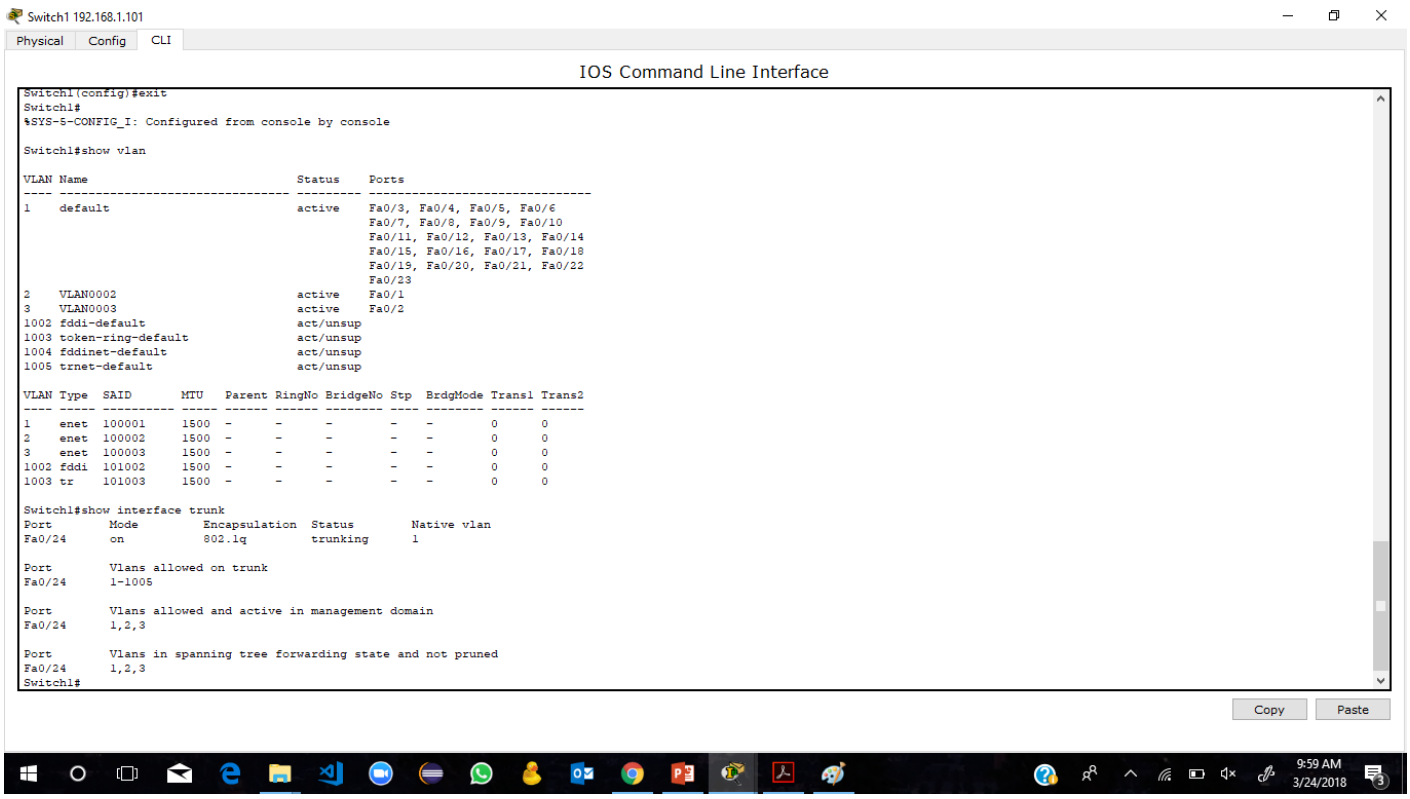
1. **(20 pts) Submit screenshot of Cisco Packet Tracer network diagram created. Make sure that the port labels are shown (Options->Preferences->Show Port Labels)**





2. **(20 pts) On the two Ethernet switches, configure the switch ports to be access ports or trunk port. Access ports needs to be configured to be in vlan2 or vlan3 as shown in diagram.**

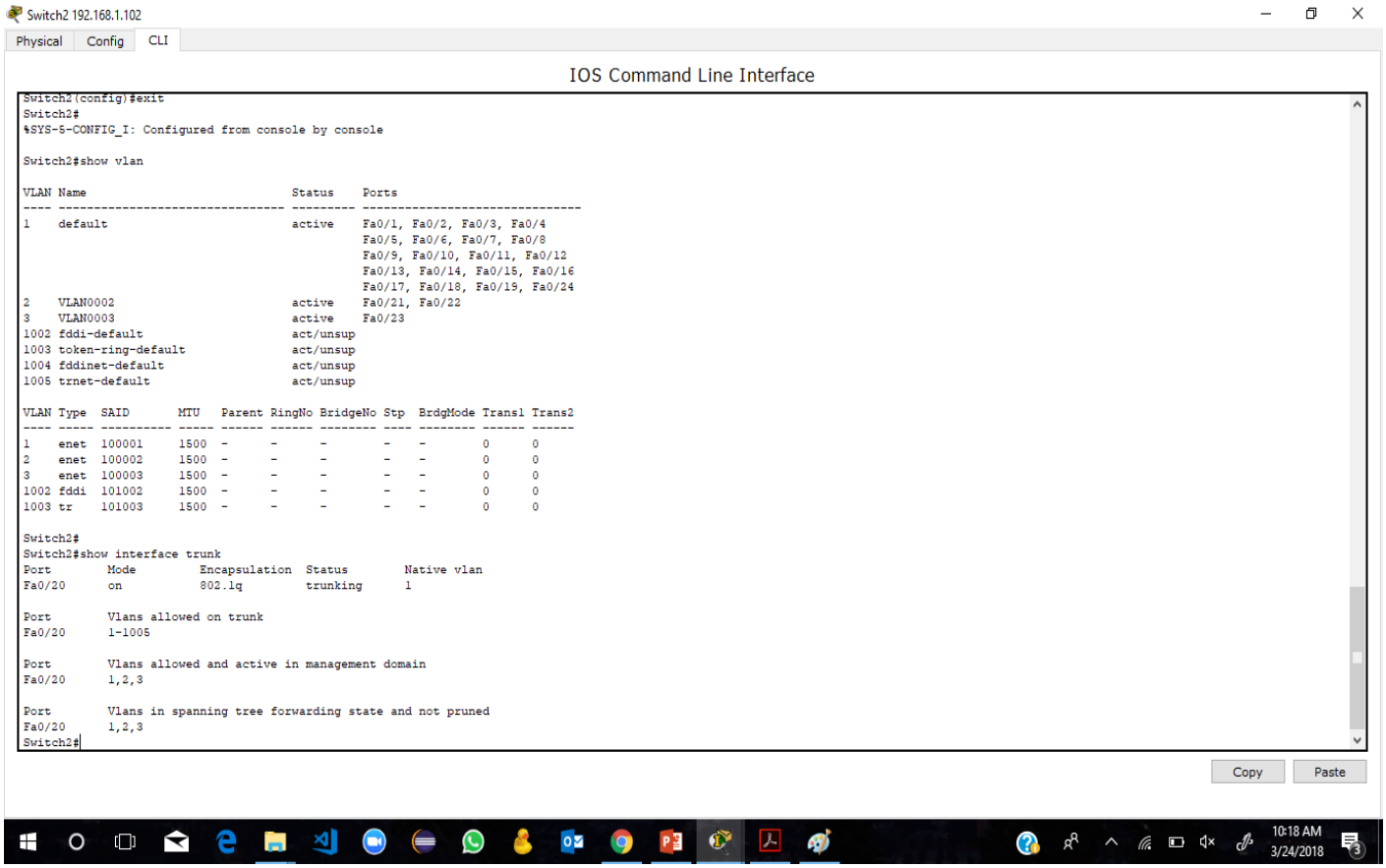
a. **Submit output of commands "show vlan" and "show interface trunk" from the CLI of Switch1.**




```
Switch1#show vlan

VLAN Name                                Status    Ports
---- ----------------------------------- --------- -------------------------------
1    default                             active    Fa0/3, Fa0/4, Fa0/5, Fa0/6
                                                   Fa0/7, Fa0/8, Fa0/9, Fa0/10
                                                   Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                   Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                   Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                   Fa0/23
2    VLAN0002                            active    Fa0/1
3    VLAN0003                            active    Fa0/2
1002 fddi-default                        act/unsup
1003 token-ring-default                  act/unsup
1004 fddinet-default                     act/unsup
1005 trnet-default                       act/unsup

VLAN Type  SAID        MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ----------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001      1500  -      -      -        -    -        0      0
2    enet  100002      1500  -      -      -        -    -        0      0
3    enet  100003      1500  -      -      -        -    -        0      0
1002 fddi  101002      1500  -      -      -        -    -        0      0
1003 tr    101003      1500  -      -      -        -    -        0      0
```

```
Switch1#show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/24      on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/24      1-1005

Port        Vlans allowed and active in management domain
Fa0/24      1,2,3

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/24      1,2,3
Switch1#
```

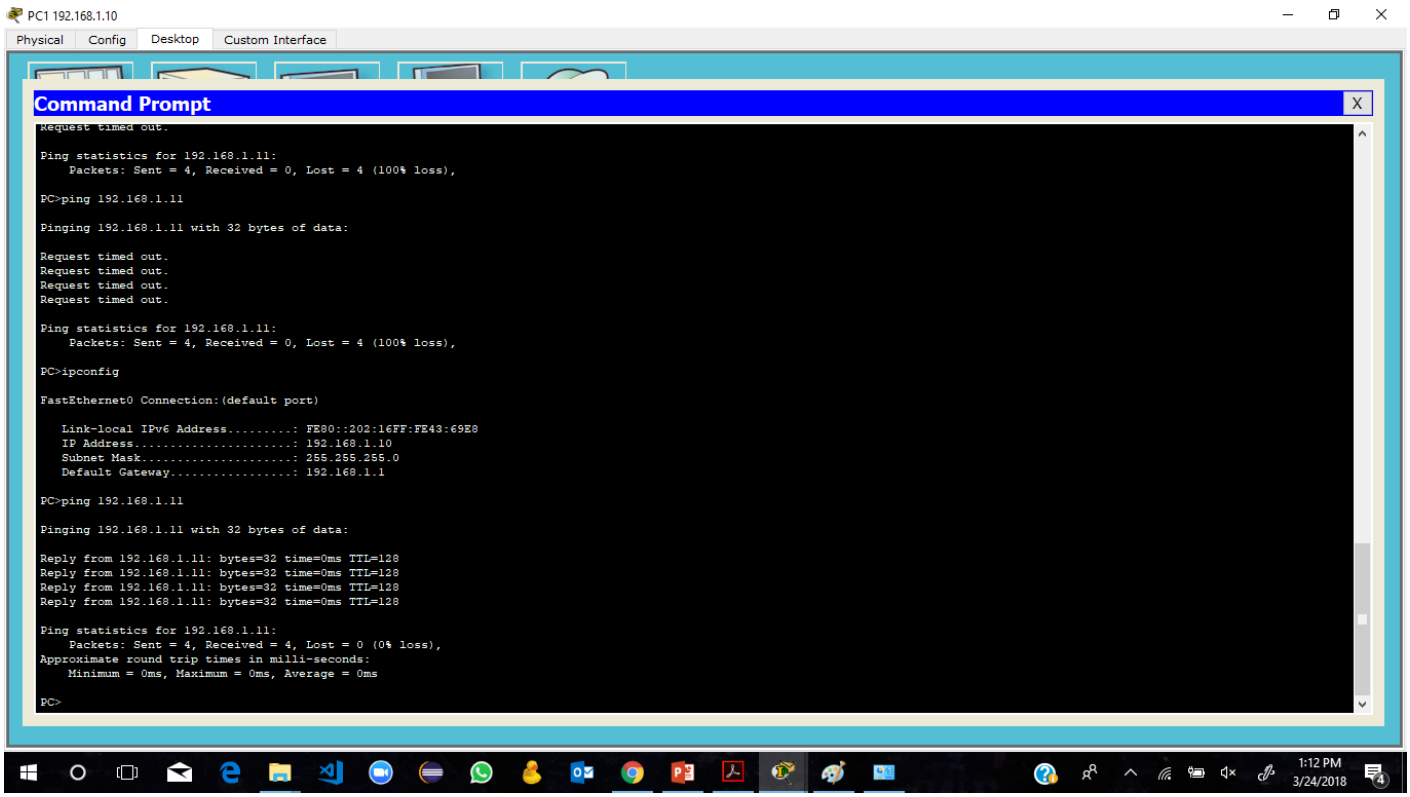
b. **Submit output of commands "show vlan" and "show interface trunk" from the CLI of Switch2**



```
Switch2#show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                 Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/24
2    VLAN0002                          active    Fa0/21, Fa0/22
3    VLAN0003                          active    Fa0/23
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
```

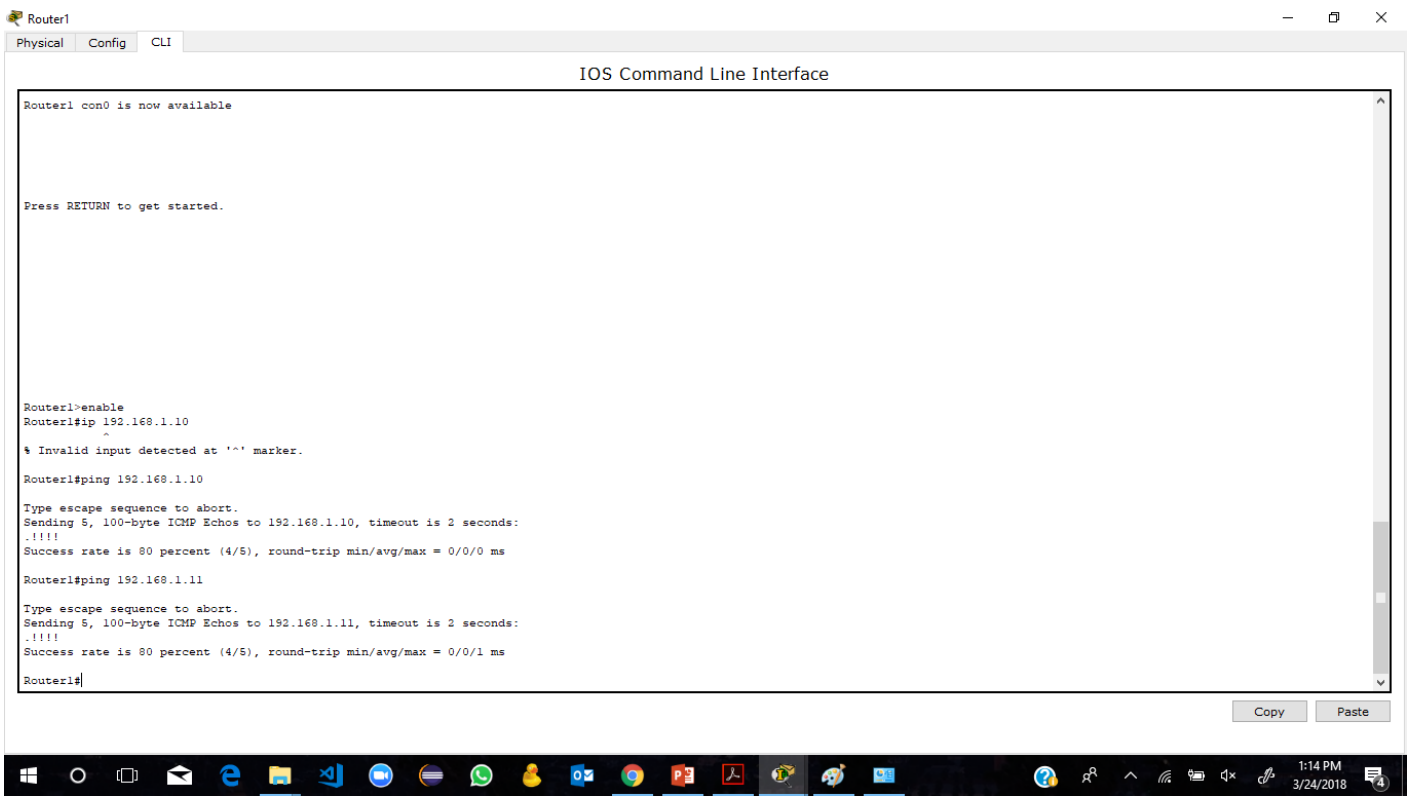
```
Switch2#
Switch2#show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/20      on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/20      1-1005

Port        Vlans allowed and active in management domain
Fa0/20      1,2,3

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/20      1,2,3
Switch2#
```

3a. (10 pt) From command prompt window of PC1, verify that you can ping IP address of PC2. Submit screenshot of this output.



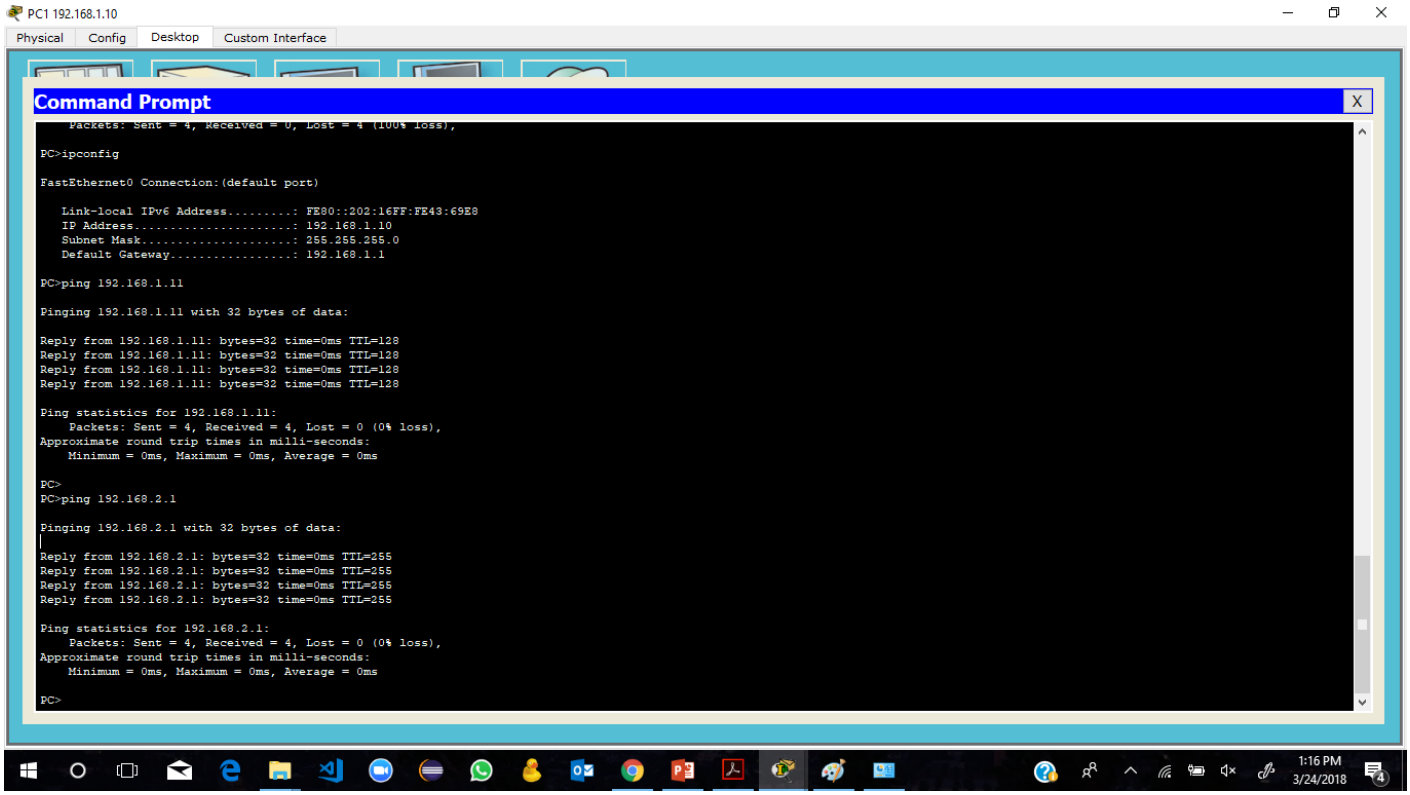

```
PC>ipconfig

FastEthernet0 Connection:(default port)

   Link-local IPv6 Address.....: FE80::202:16FF:FE43:69E8
   IP Address.....: 192.168.1.10
   Subnet Mask.....: 255.255.255.0
   Default Gateway.....: 192.168.1.1

PC>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time=0ms TTL=128
Reply from 192.168.1.11: bytes=32 time=0ms TTL=128
Reply from 192.168.1.11: bytes=32 time=0ms TTL=128
Reply from 192.168.1.11: bytes=32 time=0ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

3b. (10 pt) Configure the two ports on Router1 to have IP addresses shown in diagram. From CLI of Router1, verify that you can ping IP address of PC1 and PC2. Submit screenshot showing that from command prompt window of PC1, you can ping IP address 192.168.2.1.



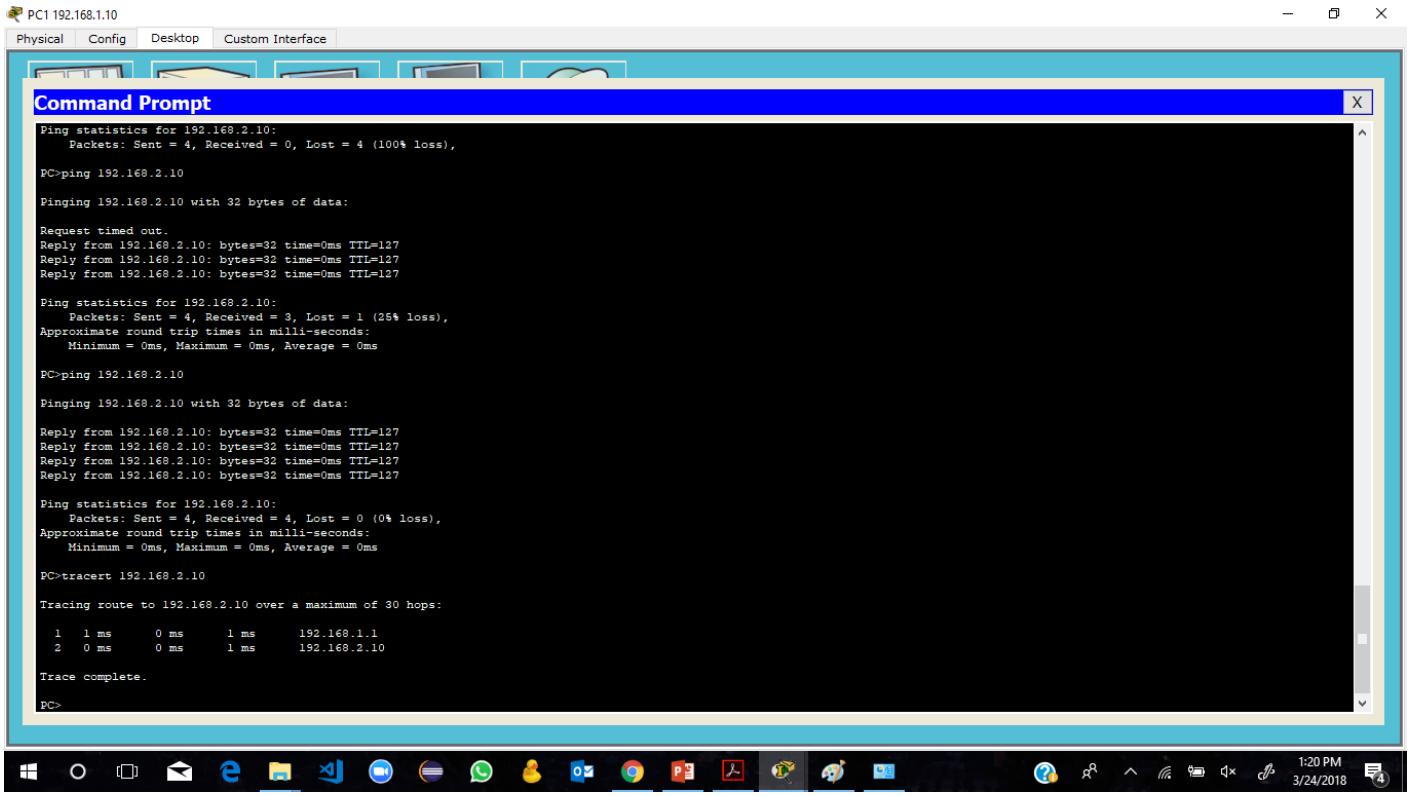

```
Router1#ping 192.168.1.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

Router1#ping 192.168.1.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

Router1#
```

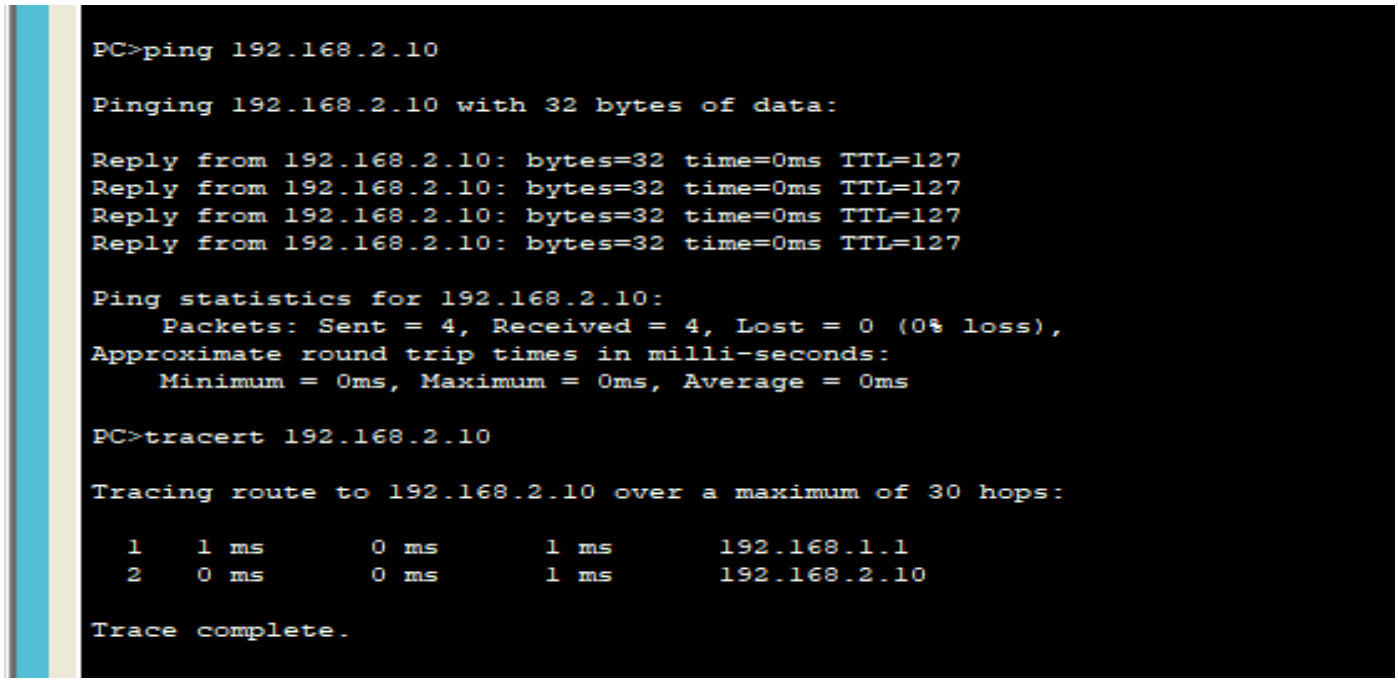
Submit screenshot showing that from command prompt window of PC1, you can ping IP address 192.168.2.1.




```
PC>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time=0ms TTL=255
Reply from 192.168.2.1: bytes=32 time=0ms TTL=255
Reply from 192.168.2.1: bytes=32 time=0ms TTL=255
Reply from 192.168.2.1: bytes=32 time=0ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

4. **(10 pt) Submit screenshot showing that from command prompt window of PC1, you can ping and tracert to IP address of Server1.**





5. **(30 pts) submit printout of output of "show running-config" from CLI of each switch and router.**

Switch1

```
Switch1>enable
Switch1#show running-config
Building configuration...

Current configuration : 1218 bytes
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch1
!
!
!
spanning-tree mode pvst
!
interface FastEthernet0/1
 switchport access vlan 2
 switchport mode access
!
interface FastEthernet0/2
 switchport access vlan 3
 switchport mode access
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
```

```
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
 switchport access vlan 2
 switchport mode trunk
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan2
 ip address 192.168.1.101 255.255.255.0
!
interface Vlan3
 no ip address
!
!
```

```
!
interface FastEthernet0/24
 switchport access vlan 2
 switchport mode trunk
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan2
 ip address 192.168.1.101 255.255.255.0
!
interface Vlan3
 no ip address
!
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
end
```

Switch 2

```
Switch2>enable
Switch2#show running-config
Building configuration...

Current configuration : 1184 bytes
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch2
!
!
!
spanning-tree mode pvst
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
```

```
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
 switchport mode trunk
!
interface FastEthernet0/21
 switchport access vlan 2
 switchport mode access
!
interface FastEthernet0/22
 switchport access vlan 2
 switchport mode access
!
interface FastEthernet0/23
 switchport access vlan 3
 switchport mode access
!
interface FastEthernet0/24
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan3
 no ip address
!
```

```
interface FastEthernet0/24
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan3
 no ip address
!
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
end
```

Router:

```
Router1#show running-config
Building configuration...

Current configuration : 581 bytes
!
version 12.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router1
!
!
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
```

```
!
!
!
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 192.168.2.1 255.255.255.0
 duplex auto
 speed auto
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```